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Naavi's Data Valuation Model

Naavi has been in the forefront of suggesting that “Data” as an asset in the hands of an organization has to be valued in financial terms and represented in the Balance sheet of the organization.

At present there is no clear way of assigning a value to data and therefore the value included in the balance sheet cannot be available for being treated as a “Profit”.

However, if there is some value represented in the Balance sheet, the CFO, CEO and the Board would have visibility to the data asset possessed by the organization. This will make them realize their responsibility to ensure that funds are earmarked for security.

If the valuation cannot be agreed upon, Naavi has suggested that we can include the data as a “Contra Entry” where the value appears both on the asset side and liability side. It does not affect the profit calculations based on which analysts do ratio analysis or investors look at EPS and market capitalization.

However, by the time India introduces the Non Personal Data Governance Act as suggested by the Kris Gopalakrishna Committee, there will be a need for organizations to devise a method by which they can evaluate their Non Personal Data Asset for the purpose of monetization.

In the meantime, we need a valuation for the purpose of Cyber Insurance as well as to make an assessment of the damage when a data breach occurs.

The Data Protection Authority when it comes up in India will have to consider administrative penalties for non compliance and harm caused to data principals. Currently the PDPB 2019 considers “Global Turnover” as a criteria to determine the penalty in respect of data breaches and can impose a penalty of Rs 5 crore or upto 2% of the total worldwide turnover of the organization in the previous year.

Maybe the DPA should also consider the “Value of Personal Data Compromised” as an additional criteria to determine the penalty

There is therefore a need for development of a methodology for valuing Personal Data. We normally expect the Chartered Accountants to come up with such a methodology which can be derived from the various methods used for valuing intangible assets.

But though the undersigned had contacted the ICAI some time back, there is no response from their end on any attempt towards this direction. Had ICAI realized the need, they would have perhaps set up a committee of experts and started their work. The MeitY also has not addressed the issue.

I am therefore holding out one methodology here and request FDPPPI (Foundation of Data Protection Professionals in India) to take up the responsibility for setting up an Expert Committee and come up with some recommendations.

The suggestions from the author's side which is titled "Naavi's Data Valuation Methodology" may be seen as part of the "Theory of Data" that was announced some time back where it was indicated that personal data gains value during its life cycle and ownership of this "Addition" of value should be accounted to the credit of the owner of the process which causes the "Addition".

Value Determinants

Value of Data has many dimensions.

Inherent value of data may be based on the cost of acquisition or creation.

Organizational value may be based on the "Expected Market Value less cost of value addition" and may differ at different points along the life cycle of the data which moves from the state of chaotic, zero value data to, meaningful data, to personal data to sensitive personal data etc.

The market value of data may apply to cases where the data is marketable or can be exchanged for consideration.

When a data breach occurs, there will be a change of value. The value change can be downwards if the data had earlier been valued properly and now it has to be adjusted for the cost of mitigation of risk or cost of cleaning up the data.

On a going concern basis, the organisation has to continue to do business with the same data and hence the value of the data at the reduced or adjusted value will remain in the organization. The Cost of insurance coverage to be provided to the affected data principals and additional security cost could add to the cost and accountants can consider reducing it from the value or showing it as an expenditure in the revenue account.

For valuation of data breach, and the insurance costs, the fact whether the breached data was encrypted or not becomes a key issue.

Year by year, the value of data changes. Some data depreciates while some data may appreciate. We need to factor this into the valuation concept. The depreciation can be provided at 50% so that the value drops steeply in the first 5 years from 100 to 50 and to 25, 12.5 and 6. Indian law expects that personal data has to be re-confirmed by the data principal once a year (Refer ITA 2000) and hence the high depreciation would be justified.

Further the value of data depends on the depth of the given data set. For example a basic data set which may contain the "Contact" information only may have one basic value. But if it is associated with financial data it will acquire a different value. Thus several considerations have to go into the valuation of the data as represented in the balance sheet.

Since the utility of data varies over time, personal data valuation should also take into account the age of the data and the extent of its accuracy. This is the quality index of the data.

Valuation of data may also be affected by the applicable data protection law since different data protection laws may have different implications. For example, in some laws, the business e-mail may be considered as "Personal Data" while in some it may be considered Non personal data. In some laws "financial" information may be considered as sensitive while in some not. In some laws, "Anonymized" data may be considered as non personal data while in some laws a distinction may be made on "Anonymized data created out of legacy identified data".

Beyond this, the value of a unit of data may have different values in the hands of different users and therefore it may have to be revalued whenever it changes hands. For example a gem stone may

have one value with a consumer but a jeweller who purchases it may revalue it because he may be aware of its real value. The same gem may have one value in India and another in USA.

The valuation methodology has to therefore consider all these factors.

Naavi therefore proposes classification of data into different categories using the enclosed grid.

The valuation will require a multi dimensional evaluation of the data but it has been reduced to a two dimensional grid.

Dimensions of Data Valuation

Dimension 1: Type of data based on the components of the Data Set

Dimension 2: Quality of Data

Dimension 3: Applicable Law

Dimension 4: User context

Since dimensions 3 and 4 are specific to the organization and the requirement, the value in the hands of an organization as per an applicable law like Indian PDPA (Proposed) or GDPR, can be mapped under the dimensions 1 and 2.

In case the organization has personal data for which different laws need to be applied, the value of each set of data under the applicable law may be calculated differently and presented in the balance sheet separately.

For valuation purpose, the first parameter to be determined is the "Intrinsic Value" (x) of the data and the number (n) of data sets under the different classifications indicated in the table on the confluence of X and Y axis.

Intrinsic Value (X) is calculated as an average of the Cost of Acquisition, Replacement Cost and Market Value if any.

Then the enclosed multiplier table is used to determine the value of different data sets by estimating the number of data sets in each category, which can then be aggregated and taken to the balance sheet as a contra item.

Post Data Breach Valuation

The above discussion was on the basis of a "Going Concern Valuation" where data is used by an organization. It is either collected as personal data or generated as personal data by accumulating the different components. Hence there is a clear cost of acquisition. Replacement cost is a concept which is more or less equal to the cost of acquisition since the process of collection has to be repeated. It may however be lesser if there is a data base for which only a re-consent has to be obtained like it happens when there is a loss on account of a data breach. Market Value is relevant if the personal data is actually transferred for consideration. If personal data from one division has to be transferred to another division, a transfer price may be charged which becomes the equivalent of marketing value. Alternatively if personal data can be anonymized and marketed, then there could be a market value.

When a data breach is observed, there would be a need for downward revision of the personal data valuation based on the nature of the breach and the extent of the breach. In other words the post data breach valuation would be less than the pre-data breach value.

The Data Breach auditor may have to give indication in his report on how many data sets were compromised and whether the data loss was partial (say redacted credit card numbers) or complete, whether the data can be re-used after resetting of passwords or obtaining a re-consent and providing insurance assurance etc.

At the least the value of the post data breach would be around 20% of the earlier value but may not be zero. At the same time some notional loss of 20% could be factored in even when there is no clear evidence that the compromise really resulted in exfiltration or not. Hence the post data breach value may be any where between 20% and 80% subject to an assessment of the data breach auditor of how near the loss on account of compromise can be estimated.

Periodicity of Valuation

Since data processing is a continuous activity in an organisation and part of the data asset would be "Data In Process" rather than "Raw Data" or "Finished Data", it would be necessary for an organization to conduct a data valuation audit from time to time such as once in a half year or once in an year and absorb the approximation that may remain in the intervening period.

Valuation of Non Personal Data

Non Personal data refers to all data which is outside the domain of the personal data. Part of the Non Personal data relates to software purchases and products on which there could be IPR for the organization.

Additionally, Non personal data may include corporate business data such as financial data, market data etc. They also may have a life cycle from generation to deletion and hence a process similar to what has been suggested for Personal Data valuation is suggested.

Until such time there is a need for accurate valuation, an organization may categorize non personal data into different categories such as financial data, market data etc and assign a value based on the total byte size of each type of data. Eg: Rs x for each TB of data.

Value Multiplier applicable for Personal Data Valuation (MF)

(Intrinsic Value=X to be multiplied by this factor)

Quality of Data → Type of Data ↓		As collected	Verified by the User	Confirmed by the Data Principal	Verified and Confirmed	
Multiplication Factor	→ ↓	1	1.2	1.5	2	
No Identity parameter	0	0	0	0	0	
One simple Identity parameter only (Name or e-mail address or Mobile number)	1	1	1.2	1.5	2	
						Number of data sets (n)
						Total value (Number*MF*X)
Two simple Identity parameters	1.5	1.5	1.8	2.25	3	
						Number of data sets (n)
						Total value (Number*MF*X)
Three or more simple identity parameters	2	2	2.4	3	4	
						Number of data sets (n)
						Total value (Number*MF*X)
Unique ID such as PAN or Aadhaar	2.5	2.5	3	3.75	5	
Sensitive information other than unique ID, Financial or Health Information	3	3	3.6	4.5	6	
						Number of data sets (n)
						Total value (Number*MF*X)
Financial Information	4	4	4.8	6	8	
						Number of data sets (n)
						Total value (Number*MF*X)
Health Information	4	4	4.8	6	8	
						Number of data sets (n)
						Total value (Number*MF*X)
Biometric	5	5	6	7.5	10	
						Number of data sets (n)
						Total value (Number*MF*X)